

**IN THE UNITED STATES COURT OF FEDERAL CLAIMS**

Receipt number 9998-4814183

Riverview Farms; Michael Blasdel, Eleanor Blasdel and Tammy Blasdel; Michael Boatwright and Iva KaLoia Boatwright; John Crenshaw; Joseph Edwards; Roy L. McCutchen and Trudy F. McCutchen; David R. Reed, Jr.; Harold D. Lowe and Michelle R. Lowe; Norman T. Massey; Crawford Lake Hunt Club, LLC; Darrin Rudolph and Marie Rudolph; James Wray and Kelly Wray; Shelby Lake Farms, LLC; Bandana Hunt Club, Inc. and Bandana Farm, LLC; Duccentral Farms, LLC; Father & Son Hunting Club, Inc.; HMS Farm & Water Fowl Hunting Club, LLC; Fielding Anderson; Hunters Pond, Inc.; Swan Lake Farms, LLC; Ax Lake Hunting & Fishing Club, Inc.; Mitchell Lake Farms, LLC; Ballard Waterfowl Properties, Inc.; Barker Land Holdings, LLC; Huntland Properties of Ballard County, LLC; Black Duck Flats, LLC; Lonnie Conyers; Melanie W. Kelley, POA for Olive Mae Wilson Coomer; David P. Damron; Waldon Hunting Club, Inc.; James Richard Waldon; Heritage Farms of Carlisle County, LLC; J & B Davis Farms, LLC and R & S Davis Farms, LLC; Stor-Mor Buildings, LLC; Charles K. Davis, Jr.; Barrow Farms, LLC; Prairie Lake Sportsman Club, LLC; Fallen Timber Farms, LLC, Terry W. Gipson and Kimberly A. Gipson; Grassy Lake of Kentucky, LLC; The Creek Hunt Club, LLC; Gregory Joles; iDuck Investments, LLC; Melanie W. Kelley, Trustee of GST Exempt Trust U/T/A Martha Wilson and GST Exempt Trust U/T/A James A. Wilson; William E. Kilby and Marilyn Kilby; Mary Miller; Todd Moore and Lewis Dodds; Mallard – X Farm, LLC; Old Mitchel Field, LLC; Wildlife Farms, Inc.; Yancey Farms, Inc; Kenneth L. Schroeder; Soggy Bottom Boys Outfitters, LLC; Southern Horn Chute, LLC; Shawnee Creek

No. \_\_\_\_\_

Sportsmens Club, LTD; Brent Sullivan and Tracy Sullivan; Tall Paul's Hunting Club, LLC; Ronnie Toombs and June Ann Toombs; Bobby J. Ashley and Patricia A. Ashley; Carol Anne Vander Boegh Irrevocable Trust; John Wiggins, Jim Coleman and Kate L. Coleman; Bret Wilson and Sharon Wilson; Greg Hambrick; Baker Trust, Hambrick Farms Real Estate, LLC, Cindy Ballard; Alice Hambrick; Tara D. Miller Living Trust; Roy Dillard and Laura Dillard; Randall Deweese, Joyce Deweese and Hales Farm; Island Farms, LLC; and Grogan Properties, LLC; Middle Bar Partnership; Ricky L. Williams; Joseph D. House, Sr. and Katherine G. House; James R. Kerr, Jr.; Tony and Pam Gill; Darryl Wolford Farms, LLC; Matthew Morrow and Molly Morrow; C. Fray Morrow and Crystal Hammond-Morrow; Julia Morrow Weber; Gail Morrow Justice; Margaret J. Morrow; Stephen J. Morrow; Danielle Boyd; Maxwell Family Trust; Michael Reid and Kathryn Reid; Frank Shelton and Carla Shelton; Alicia M. Turner; William R. Noe; Floyd E. Carpenter; Blue Acres, LLC and Megan Saylor Lifetime Trust; Freeman Finley Farms, LP; CPH Enterprises, LLC; Steven LaFont and Valerie LaFont; John P. LaFont, Andrew LaFont and J. Matt LaFont; Norman H. Lewis Trust; Poco Properties, LP; Albert Duenne; Mark Duenne and Julie Duenne,

Plaintiffs,

v.

THE UNITED STATES,

Defendant.

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## **COMPLAINT**

### **NATURE OF THE CLAIM**

1. Plaintiffs bring their claims for takings of their land and other property without just compensation, by means of the construction of river training structures by the U.S. Army Corps of Engineers (“the Corps” or “Corps”). Accelerating their decades-old overly invasive approach to managing the Mississippi and Ohio Rivers, the Corps constructed dams, navigational dams, canals, dikes, wing dikes, chevrons, and bendway weirs in the Middle Mississippi River the Lower Mississippi River, the Lower Ohio River, and Tributaries (collectively the “Rivers”).

2. Specifically, to maintain a navigable river channel in the Rivers and minimize dredging costs, the Corps constructed river training structures, including wing dikes, chevron dikes, bendway weirs, and other dike varieties (“the Structures” or “Structures”) in the Rivers knowing that the direct, natural, probable and foreseeable result would be to increase the average Water Surface Elevations (WSEs) of the Rivers.

3. The most common measure of WSEs is the “stage,” *i.e.* WSEs relative to a local datum. Stage is measured by local gage stations along the Rivers.

4. As a result of increased WSEs, Plaintiffs’ property has become inundated more frequently, at higher elevations, for longer durations, and at unusual times of year (collectively, “atypical flooding”).

5. The atypical flooding has caused some of Plaintiffs’ land to be severely eroded, has inundated Plaintiffs’ property at elevations above the natural flood plain, has altered the water table, and has left debris on Plaintiffs’ property.

6. The Corps has been reshaping the Mississippi, Ohio, and other Midwestern rivers to facilitate navigation for the past 150 years. Today, the Middle Mississippi River contains, on

average, over 6,000 feet of dikes per mile of river channel. Portions of the Rivers discussed herein include the greatest densities of dike structures, both in number and length, in the world.

7. The Corps constructed levees on the banks of the Mississippi River in most of Missouri, Illinois, Arkansas, Tennessee, and Mississippi to prevent flood inundation and to narrow the flood plain.

8. Specifically, at the confluence of the Mississippi River and Ohio River at Cairo, Illinois, the Corps constructed levees along the banks of the Rivers in the States of Missouri and Illinois, did not construct or authorize levees on the adjacent banks in the State of Kentucky when the Corps knew, or should have known, that the direct, natural, probable and foreseeable result of the Structures would be to increase the average WSEs and cause atypical flooding events.

9. The Corps did not construct or authorize levees in the Illinois Counties of Alexander, Massac, Pope, and Pulaski when it knew, or should have known, that the direct, natural, probable and foreseeable result of the Structures would be to increase the average WSEs and cause atypical flooding events.

10. The Corps foresaw that its river management practices would result in a severe invasion of Plaintiffs' property, appropriating Plaintiffs' rights therein, by effectively imposing flowage easements on Plaintiffs' property.

11. Under the 1927 Rivers and Harbors Act, Congress established specific limits on how many feet the Corps can constrict the Mississippi River channel. Specifically, channel constriction through regulating works and revetment is limited to a conservative width of 2,500 to 2,000 feet at low water: 2,250 foot contraction from River des Peres to Grays Point; 2,500

foot contraction from Commerce to Commercial Point; and 2,000 foot contraction from Commercial Point to Ohio River.

12. The Corps has aggressively contracted the Mississippi River channel far beyond the mandated minimum widths without obtaining Congressional authorization.

13. As a direct, natural, probable and foreseeable result of the Corps' Structures, some of Plaintiffs' lands have been subjected to atypical flooding events during 10 of the last 10 years. These floods have substantially impacted and destroyed Plaintiffs' land and property, depriving them of its use and enjoyment for extended periods of time and, in some cases, permanently. All of Plaintiffs' lands are subject to atypical flooding,

14. For example, United States Geological Survey ("USGS") tables suggest that in 12 of the past 20 years most of Plaintiffs' properties have experienced at least a "5-year flood"; in other words, a flood that historically has a 20% chance of occurring in a given year.

15. But for the Corps' Structures and river management practices, all flooding would have been smaller in magnitude and damage, and many of these atypical flood events would not have occurred. To the extent that natural seasonal flooding would have occurred in the absence of the Corps' Structures, it has been severely altered and aggravated by the Structures.

16. The Corps knew or should have known that continued construction of the Structures would result in frequent overflow of the Rivers and devaluation of Plaintiffs' private property, sacrificing Plaintiffs' land and other property for the public purpose of improving navigation.

17. The atypical flooding caused by the Corps' Structures and river management practices imposed a severe burden on Plaintiffs' land and other property, profoundly disrupting

and interfering with Plaintiffs' reasonable, investment-backed expectations regarding the intended and customary use of that land and other property.

18. Historically, the federal government had expressly encouraged and incentivized farming and economic development along the Rivers. Plaintiffs reasonably relied on the Corps' authority and experience in managing the Rivers, and collectively invested billions of dollars and tremendous efforts to maintain their land and other property for its intended and customary use.

19. Worse yet, in response to mounting evidence demonstrating that its Structures and river management practices have increased flood levels and frequencies, the St. Louis District of the Corps ("St. Louis Corps") has hidden and manipulated original river data. These data manipulations effectively mask increases in flood magnitudes and frequencies; increases driven primarily by the Corps own construction of river training Structures.

20. The Corps has not obtained flowage easements, through contract or inverse condemnation, nor has the Corps offered Plaintiffs just compensation for the benefit that it has appropriated for public use.

21. The Corps' practices have sacrificed Plaintiffs' land and other property, without compensation, for the public benefit.

### **JURISDICTION AND VENUE**

22. This Complaint states causes of action for taking of property and flowage easements without just compensation in violation of the Fifth Amendment to the United States Constitution. The Court has jurisdiction over this action under 28 U.S.C. § 1491(a).

23. Venue is proper in the United States Court of Federal Claims pursuant to 28 U.S.C. § 1491(a).

## **PARTIES**

24. The Plaintiffs are farmers who own and/or operate farms within the reach of the Mississippi River and Ohio River; individuals who reside and/or operate businesses in the reach of the Mississippi River and Ohio River; or individuals, corporations, partnerships, trusts or other legal entities that own and/or operate businesses in the reach of the Mississippi River and Ohio River.

25. The Plaintiffs were farmers who own and/or operate farms in the reach of the Mississippi River and Ohio River; individuals who reside and/or operate businesses in the reach of the Mississippi River and Ohio River; or individuals, corporations, partnerships, trusts or other legal entities that own and/or operate businesses in the reach of the Mississippi River and Ohio River.

26. Plaintiff, Riverview Farms, was deprived of the use and enjoyment of its land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

27. Plaintiffs, Michael Blasdel, Eleanor Blasdel and Tammy Blasdel, were deprived of the use and enjoyment of their land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

28. Plaintiffs, Michael Boatwright and Iva KaLoia Boatwright, were deprived of the use and enjoyment of their land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

29. Plaintiff, John Crenshaw, was deprived of the use and enjoyment of his land in

McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

30. Plaintiff, Joseph Edwards, was deprived of the use and enjoyment of his land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

31. Plaintiffs, Roy L. McCutchen and Trudy F. McCutchen, were deprived of the use and enjoyment of their land in McCracken County, Kentucky and Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

32. Plaintiff, David R. Reed, Jr., was deprived of the use and enjoyment of his land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

33. Plaintiffs, Harold D. Lowe and Michelle R. Lowe, were deprived of the use and enjoyment of their land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

34. Plaintiff, Norman T. Massey, was deprived of the use and enjoyment of his land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

35. Plaintiff, Crawford Lake Hunt Club, LLC, was deprived of the use and enjoyment of its land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

36. Plaintiffs, Darrin Rudolph and Marie Rudolph, were deprived of the use and enjoyment of their land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.



37. Plaintiffs, James Wray and Kelly Wray, were deprived of the use and enjoyment of their land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

38. Plaintiff, Shelby Lake Farms, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

39. Plaintiffs, Bandana Hunt Club, Inc. and Bandana Farm, LLC, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

40. Plaintiff, Duccentral Farms, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

41. Plaintiff, Father & Son Hunting Club, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

42. Plaintiff, HMS Farm & Water Fowl Hunting Club, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

43. Plaintiff, Fielding Anderson, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

44. Plaintiff, Hunters Pond, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

45. Plaintiff, Swan Lake Farms, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

46. Plaintiff, Ax Lake Hunting & Fishing Club, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

47. Plaintiff, Mitchell Lake Farms, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

48. Plaintiff, Ballard Waterfowl Properties, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

49. Plaintiff, Barker Land Holdings, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

50. Plaintiff, Huntland Properties of Ballard County, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

51. Plaintiff, Black Duck Flats, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

52. Plaintiff, Lonnie Conyers, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

53. Plaintiff, Melanie W. Kelley, POA for Olive Mae Wilson Coomer, was deprived of the use and enjoyment of her land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

54. Plaintiff, David P. Damron, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

55. Plaintiff, Waldon Hunting Club, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

56. Plaintiff, James Richard Waldon, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in nine (9) out of the last ten (10) years.

57. Plaintiff, Heritage Farms of Carlisle County, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky and Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

58. Plaintiffs, J & B Davis Farms, LLC and R & S Davis Farms, LLC, was deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

59. Plaintiff, Stor-Mor Buildings, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

60. Plaintiff, Charles K. Davis, Jr., was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

61. Plaintiff, Barrow Farms, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

62. Plaintiff, Prairie Lake Sportsman Club, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

63. Plaintiff, Fallen Timber Farms, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

64. Plaintiffs, Terry W. Gipson and Kimberly A. Gipson, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

65. Plaintiff, Grassy Lake of Kentucky, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

66. Plaintiff, The Creek Hunt Club, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

67. Plaintiff, Gregory Joles, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

68. Plaintiff, iDuck Investments, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

69. Plaintiffs, Melanie W. Kelley, Trustee of GST Exempt Trust U/T/A Martha Wilson and Melanie W. Kelley, Trustee of GST Exempt Trust U/T/A James A. Wilson, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

70. Plaintiffs, William E. Kilby and Marilyn Kilby, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

71. Plaintiff, Mary Miller, was deprived of the use and enjoyment of her land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

72. Plaintiffs, Todd Moore and Lewis Dodds, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

73. Plaintiff, Mallard – X Farm, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

74. Plaintiff, Old Mitchell Field, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

75. Plaintiff, Wildlife Farms, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

76. Plaintiff, Yancey Farms, Inc., was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

77. Plaintiff, Kenneth L. Schroeder, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

78. Plaintiff, Soggy Bottom Boys Outfitters, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

79. Plaintiff, Southern Horn Chute, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

80. Plaintiff, Shawnee Creek Sportsmens Club, LTD, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

81. Plaintiffs, Brent Sullivan and Tracy Sullivan, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

82. Plaintiff, Tall Paul's Hunting Club, LLC, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

83. Plaintiffs, Ronnie Toombs and June Ann Toombs, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

84. Plaintiffs, Bobby J. Ashley and Patricia A. Ashley, were deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

85. Plaintiff, Carol Anne Vander Boegh Irrevocable Trust, was deprived of the use and enjoyment of its land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

86. Plaintiff, John Wiggins, was deprived of the use and enjoyment of his land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

87. Plaintiffs, Jim Coleman and Kate L. Coleman, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

88. Plaintiffs, Bret Wilson and Sharon Wilson, were deprived of the use and enjoyment of their land in Ballard County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

89. Plaintiff, Greg Hambrick, were deprived of the use and enjoyment of his land in Carlisle County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

90. Plaintiff, Alice Hambrick, was deprived of the use and enjoyment of her land in Carlisle County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

91. Plaintiff, Tara D. Miller Living Trust, was deprived of the use and enjoyment of its land in Carlisle County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

92. Plaintiffs, Roy Dillard and Laura Dillard, were deprived of the use and enjoyment of their land in Fulton County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

93. Plaintiffs, Randall Deweese, Joyce Deweese and Hales Farm, were deprived of the use and enjoyment of their land in Fulton County, Kentucky and Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

94. Plaintiff, Island Farms, LLC, was deprived of the use and enjoyment of its land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

95. Plaintiff, Grogan Properties, LLC, was deprived of the use and enjoyment of its land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

96. Plaintiff, Middle Bar Partnership, was deprived of the use and enjoyment of its land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

97. Plaintiff, Ricky L. Williams, was deprived of the use and enjoyment of his land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

98. Plaintiffs, Joseph D. House, Sr. and Katherine G. House, were deprived of the use and enjoyment of their land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

99. Plaintiff, James R. Kerr, Jr., was deprived of the use and enjoyment of his land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.



100. Plaintiffs, Tony Gill and Pam Gill, was deprived of the use and enjoyment of their land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

101. Plaintiffs Darryl Wolford Farms, LLC, was deprived of the use and enjoyment of its land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

102. Plaintiffs, Matthew Morrow and Molly Morrow, were deprived of the use and enjoyment of their land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

103. Plaintiffs, C. Fray Morrow and Crystal Hammond-Morrow, were deprived of the use and enjoyment of their land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

104. Plaintiff, Julia Morrow Weber, were deprived of the use and enjoyment of her land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

105. Plaintiff, Gail Morrow Justice, were deprived of the use and enjoyment of her land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

106. Plaintiff, Margaret J. Morrow, were deprived of the use and enjoyment of her land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

107. Plaintiff, Stephen J. Morrow, was deprived of the use and enjoyment of his land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

108. Plaintiff, Danielle Boyd, was deprived of the use and enjoyment of her land in Hickman County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

109. Plaintiff, Maxwell Family Trust, was deprived of the use and enjoyment of its land in Livingston County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

110. Plaintiffs, Michael Reid and Kathryn Reid, were deprived of the use and enjoyment of their land in Livingston County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

111. Plaintiffs, Frank Shelton and Carla Shelton, were deprived of the use and enjoyment of their land in Livingston County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

112. Plaintiff, Alicia M. Turner, was deprived of the use and enjoyment of her land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

113. Plaintiff, William R. Noe, was deprived of the use and enjoyment of his land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

114. Plaintiff, Floyd E. Carpenter, was deprived of the use and enjoyment of his land in McCracken County, Kentucky, due to a taking by flooding in ten (10) out of the last ten (10) years.

115. Plaintiffs, Blue Acres, LLC and Megan Saylor Lifetime Trust, were deprived of the use and enjoyment of their land in Massac County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

116. Plaintiff, Freeman Finley Farms, LP, was deprived of the use and enjoyment of its land in Massac County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

117. Plaintiff, CPH Enterprises, LLC, was deprived of the use and enjoyment of its land in Massac County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

118. Plaintiffs, Steven LaFont and Valerie LaFont, were deprived of the use and enjoyment of their land in Massac County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

119. Plaintiff, John P. LaFont, was deprived of the use and enjoyment of his land in Massac County, Illinois and Pope County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

120. Plaintiffs, Andrew LaFont and J. Matt LaFont, were deprived of the use and enjoyment of their land in Massac County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

121. Plaintiff, Norman H. Lewis Trust, was deprived of the use and enjoyment of its land in Massac County, Illinois and Pope County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

122. Plaintiff, Poco Properties, LP, was deprived of the use and enjoyment of its land in Massac County, Illinois and Pope County, Illinois, due to a taking by flooding in ten (10) out of the last ten (10) years.

123. Plaintiff, Albert Dueene, was deprived of the use and enjoyment of his land in Scott County, Missouri, due to a taking by flooding in ten (10) out of the last ten (10) years.

124. Plaintiffs, Mark Duenne and Julie Duenne, were deprived of the use and enjoyment of their land in Scott County, Missouri, due to a taking by flooding in ten (10) out of the last ten (10) years.

### **HISTORICAL BACKGROUND**

125. Until the early Twentieth Century, individuals navigating the Mississippi River and its Tributaries could only do so in shallow draft vessels. Further, navigation was often only available seasonally, limiting the utility of the Rivers for transport.

126. As transport and shipping needs increased, Congress determined that improving river navigability through engineering works on and around the Rivers was in the national interest.

127. In 1906 the Corps Board of Engineers for Rivers and Harbors (the “Board”) completed its investigation of the proposed Ohio River Canalization Project, recommending the establishment of a nine-foot navigation channel on the Ohio River from Pittsburgh, Pennsylvania to Cairo, Illinois. The Board planned to deepen the navigation channel by constructing 54 lock-and-dam structures (three of which were later eliminated through modification of other projects), consisting of movable (“wicket”) dams, each constructed alongside a 110- by 600-foot lock chamber. Congress authorized construction, following the Board’s recommendation, in the Rivers and Harbors Act of June 25, 1910. From 1910 to 1922, most work on the Ohio River

occurred upstream of Louisville, but beginning in 1922, the slogan of the Ohio Valley Improvement Association was “On to Cairo by 1929”; this despite that commercial navigation on the Ohio had by then “practically come to a halt.” As Col. Roberts of the Corps identified in 1923, “the Ohio is, to a considerable extent, only a playground for owners of small locally owned boats.” Nonetheless, the Corps completed the nine-foot Ohio River project on August 27, 1929.

128. As to the Mississippi River, the Corps understood that it was necessary to manage the flow and geometry of the Rivers in a manner that would promote navigation and create a narrow and deep channel.

129. In turn, Congress passed the Rivers and Harbors Act of 1927 (“1927 Act”), which authorized certain works, including some constriction of the Mississippi River channel.

130. To constrict the channel, for the purpose of enhancing navigation, the Corps constructed thousands of river training structures in the Rivers, literally converting these rivers into man-made constructs. Through this history, the primary authorized purpose and the primary management priority guiding Corps actions on the Rivers was navigation. The Corps carried out that priority objective through an expanding toolkit of river training structures.

131. The Corps’ engineering Structures have achieved their intended purpose, *i.e.* to create, and later facilitate, navigation on the Mississippi River and Ohio River. However, the continued construction of these Structures has yielded foreseeable adverse consequences for Plaintiffs.

## **THE EXPANDING CORPS TOOLKIT**

### *Wing Dike*

132. As discussed above, since the Nineteenth Century, the Corps has manipulated the Mississippi River and Ohio River channels with the primary goal of facilitating navigation. The Corps predominately carries out that objective on the Middle Mississippi River and upper Lower Mississippi River by constructing river training Structures to constrict the channel, and through navigational locks and dams on the Ohio River.

133. The purpose of river training Structures is to constrict the river channel, concentrate flow, redirect sediment, and deepen and maintain the navigable portion of the channel.

134. For all purposes, the Structures block portions of the River's flow area. The laws of physics and hydraulics dictate that for a series of river training Structures, blocking the flow areas results in increased flow velocity in the navigable portion of the channel as well as increased WSEs.

135. Through the Nineteenth and Twentieth Century, the primary tool to establish, deepen, and maintain the navigation channel of the Mississippi River was a Structure known as the "wing dike." Constructed from wooden pilings and/or rock, wing dikes run from the river banks for hundreds or thousands of feet into the channel for the purpose of redirecting flow and sediment.

136. As of 1990, the Middle Mississippi River contained 646 wing dikes or wing-dike segments, with a cumulative length of 378,982 feet.

137. As of 2015 the small stretch of the Lower Mississippi River from the confluence at Cairo, Illinois, south to Hickman, Kentucky, contained 27 wing dikes or wing-dike segments, with a cumulative length of 21,661 feet.

138. The 1927 Act authorized establishment of a navigable channel on the Middle Mississippi River 300 feet wide and at least nine feet deep from the mouth of the Ohio River upstream to the northern boundary of St. Louis, Missouri.

139. For decades, academic research had linked construction of wing dikes with increased flood levels. Peer-reviewed publications have linked wing dikes and bendway weirs to large decreases in flood conveyance and increases in flood levels on the Mississippi River and its tributaries.

140. Flood peaks, *i.e.* the highest value of stage for a particular gage, of the Mississippi River were 0.61 meters higher in 1973 than in 1844, but discharge was approximately 35% less than the estimated flow for 1844.

141. The 1908 Mississippi River flood had the same flow as the 1973 Mississippi River flood, but the flood peak was 2.51 meters lower in 1908.

142. As long as continuous records have been kept, flood stages at constant discharge have increased steadily on the Missouri and certain stretches of the Mississippi River. These increases correlate with continuing efforts to manage the Rivers.

143. Present-day floods on the Mississippi River at St. Louis tend to be nine feet higher than historic floods at 780,000 cubic feet per second (“cfs”).

144. In addition to academic studies, decades of the Corps’ own research have associated both losses of channel conveyance and increases in flood levels on portions of the Mississippi River and its tributaries with extensive dike construction.

145. In 1896 the Corps linked its first systemwide wing-dam construction to reduced bank full channel capacity on the Missouri River.

146. Corps' reports at the turn of the Twentieth century recognized that intensive channelization of the Missouri River resulted in losses in bank full capacity of up to 18%. Further, the Corps acknowledge that although low flows within the channel are being conveyed at progressively lower stages, flood flows are now significantly higher than prior to regulation of the river.

147. At the "navigation channel" sites along the Missouri River, WSEs fell for low discharges but rose for flood discharges, with some stations rising for all conditions. In a 1998 technical report, the Corps observed, "[t]he upward trend is most apparent at Nebraska City[, Missouri] and St. Joseph[, Missouri], where flows of 80,000 to 90,000 cfs now go overbank compared to bank full discharges of around 150,000 cfs about 30 years ago."

148. In contrast, the Corps' present position is that river training Structures do not have an effect on flood heights.

#### *Bendway Weir*

149. Since approximately 1940, the geometry of the Middle Mississippi River channel has been sufficient to facilitate navigation, supported by ongoing maintenance (primarily the dredging of sediment from the navigation channel). "[R]egulation works on the middle Mississippi were 57% complete by 1930," and "St. Louis had by 1940 completed its role in creating a nine-foot channel on the upper Mississippi."

150. With navigability in hand, the Corps no longer needed to invest in establishing the navigation channel. The Corps' subsequent construction of Structures is oriented primarily toward reducing dredging expenses. Dredging is the single greatest cost item in the Corps' civil



works budget. On the Upper Mississippi River, dredging for the nine-foot navigation channel is initiated when depths less than 0.5 feet are observed in the channel; and dredging generally is conducted to depths from 11–13 feet.

151. Beginning in approximately 1990, the Corps embarked on a renewed and aggressive campaign to further control the Middle Mississippi River and upper Lower Mississippi River. To do so, the Corps developed and utilized a new and expanding toolkit of Structures.

152. In the 1980s, the Corps invented a new type of aggressive Structure, the bendway weir. According to the American Society of Civil Engineers, “[t]otally submerged stone weirs along the outside of a river bend are a new concept of river training developed by the US Army Corps of Engineers.” Starting in 1990, the Corps quickly began constructing bendway weirs in large numbers along the Middle Mississippi River.

153. Between 1990 and 1993 alone, the Corps constructed approximately 40,000 linear feet of dikes and bendway weirs on the Middle Mississippi River.

154. As of 2012, at least 831 dikes or dike segments have been constructed on the Middle Mississippi River, with a cumulative length of at least 472,093 linear feet.

155. As of 2017, at least 27 dikes or dike segments have been constructed on the small stretch of the Lower Mississippi River from the confluence at Cairo, Illinois, south to Hickman Kentucky, with a cumulative length of 57,834 feet.

156. The Corps asserted that bendway weirs better redirect the flow of the river to shape the navigation channel and reduce dredging costs. According to the Corps, bendway weirs “extend directly into the navigation channel underneath passing tows. Their unique position and alignment alter the river’s spiraling, secondary currents in a manner which shifts the currents

away from the outside bankline . . . [t]his results in a wider and safer navigation channel through the bend without the need for periodic maintenance dredging.”

157. In addition, and despite any purported benefits to navigability and maintenance costs, bend-way weirs substantially increase WSE and flooding. Comparative analysis of the impacts of wing dikes and bendway weirs upon flood levels demonstrates that bend-way weirs have many times the flood impact of wing dikes.

158. As of 2012, at least 182 bendway weirs have been constructed on the Middle Mississippi River, with a cumulative length of at least 119,865 linear feet.

#### *Chevron Dike*

159. In the late 1990s, the Corps invented the chevron dike, an arch-shaped dike structure placed within the channel. It soon began constructing chevron dikes in large numbers along the Middle Mississippi River.

160. The Corps asserted that the chevron dike better alters sediment flow to improve navigability and reduce maintenance costs vis-à-vis wing dikes. According to the Corps, “[t]he US Army Corps of Engineers (USACE) recently constructed a set of innovative river training structures in the Upper Mississippi River to remedy a repetitive maintenance dredging problem.”

161. At present, the Corps has built at least 19 chevron dikes in the Middle Mississippi River, often accompanying new wing dikes and other dikes constructed nearby.

162. In addition to the bendway weirs and chevron dikes, the Corps continues to invent new training structures and build them in the Rivers.

163. New dike structures to date include so-called “S-dikes,” “W-dikes,” and more. The Corps has built and continues to build new dike inventions on the Rivers without prior knowledge of their impacts on real-world rivers.

164. In 2017, the Corps recommended to Congress that they proceed with a 15-year construction plan to bolster more than 1,375 Structures along the Rivers.

**THE CORPS KNEW OR SHOULD HAVE KNOWN THAT CONSRUCTION OF STRUCTURES WOULD INCREASE THE SEVERITY OF FLOODS**

**Testing**

165. There are three primary means of testing Structures to predict their potential impact.

166. The Corps currently designs and tests new dike types and dike projects using tabletop sandbox “micro-models,” the least effective testing mechanism of the three available approaches.

167. The first method of testing the impacts of Structures is physical modeling, meaning an experimental model typically conducted using actual flowing water and sand in a scaled-down environment such as a flume. In physical modeling, the proposed structure or other project features are constructed at a reduced scale, and water is poured through the model to predict the potential impacts on flow patterns, sedimentation, and potentially on flood levels. Physical models can be built at a variety of scales, from tens of feet to hundreds of feet in length.

168. The Corps developed its own method of physical modeling using an extremely small-scale model built on a tabletop, sometimes known as a “micro-model.”

169. “Micro-modeling” of river impacts has been criticized by academic researchers and even by some Corps engineers, and has been referred to as “a sandbox and a garden hose.”

170. The second method of testing the impacts of Structures is through computer-based hydraulic modeling. In this approach, the river system is simulated digitally using the principles of hydraulics and specialty software in either one-, two-, or three-dimensions. Like physical models, computer models can be used to estimate the impacts of new Structures before such

Structures are built. Both physical and computer modeling yield only best-guess estimates of real-world impacts, because they require the use of certain assumptions and uncertainties.

171. The third method of testing the impacts of river training structures is known as empirical analysis. Unlike physical and computer modeling, empirical analysis gathers real-world river measurements in the years after construction to document the actual impacts of Structures. In particular, the Corps and the United States Geological Survey (“USGS”) periodically measure river flow volumes and WSEs at numerous measurement stations on the Rivers. Using statistics and other techniques, it is possible to precisely compare river conditions before and after construction.

172. Below is a true and accurate photograph of the St. Louis District of the Corps’ micro-model taken from the Corps’ website:



173. Regarding its practice of physical tabletop modeling, the Corps’ admits that “some people within USACE question the veracity of micro-models, and some people outside USACE have severely criticized micromodels,” concluding that micro-modeling “shows a lack of predictive capability” and that “the micromodel should be limited to demonstration, education, and communication.”

174. Further, tabletop micro-modeling is incapable of testing dike impacts on flood levels. Maynard (2006) notes that there is “no correspondence of stage in model and prototype,” meaning no relationship between WSEs in the micro-model verses WSEs in the real world. Even the inventors of the St. Louis District micro-model, Robert Davinroy and his colleagues, acknowledge that “flow and stages are not directly scalable.” In fact, as implemented by the St. Louis District, the tabletop micro-model *cannot even be operated in flood conditions* because “[m]aximum stages in the micro-model are about 2/3 of bank full.”

175. Nonetheless, despite this guidance and available modeling alternatives, the Corps has designed, and continues to design, its Structures primarily using in-house physical micro-modeling.

176. Despite voluminous academic and Corps research suggesting that Structures are likely to cause flood-level increase, the Corps continues to build at a rapid rate.

177. Despite superior modeling alternatives in widespread use within the private sector, the federal government, and even the Corps itself, the Corps continues to deploy river training structures after only conducting physical micro-model tests.

### **Knowledge**

178. Other federal agencies and the academic community have recognized that cumulatively, river training structures are causing extreme flooding events.

179. The Corps has acknowledged that the United States Fish and Wildlife Service (“USFW”) “states that channel training structures have also altered the natural hydrograph of the Middle Mississippi River by contributing to higher WSE at lower discharges than in the past and to a downward trend in annual minimum stages.”

180. The flooding consequences associated with the Corps construction and management practices have not been lost on the academic communities and non-governmental organizations, nor on the press and the public. Specifically, there has been widespread and well documented public opposition to additional dike construction on the Rivers.

181. The Corps held a public hearing in Wolf Lake, Illinois in February of 2014. The hearing was intended to engage with stakeholders, as required by the National Environmental Policy Act, regarding the Corps' Grand Tower Phase 5 project, one of several local dike construction projects along the MMR. The hearing was crowded with teachers, students, levee board members, local leaders, scientists, environmentalists and numerous floodplain residents. The overwhelming consensus was in opposition to the construction of new Structures through the project. Minutes after the meeting, the district staff told local media that they will move forward with the projects regardless of public input. Indeed, the district announced shortly thereafter that it would proceed with dike construction as planned.

182. The Editorial Board of the St. Louis Post-Dispatch, along with numerous other press groups and outlets nationwide, have repeatedly exhorted the Corps to come to grips with the impacts of its river construction program on flooding.

183. The Corps has uniformly dismissed and disregarded all expressions of concern and opposition by the public and other federal agencies alike.

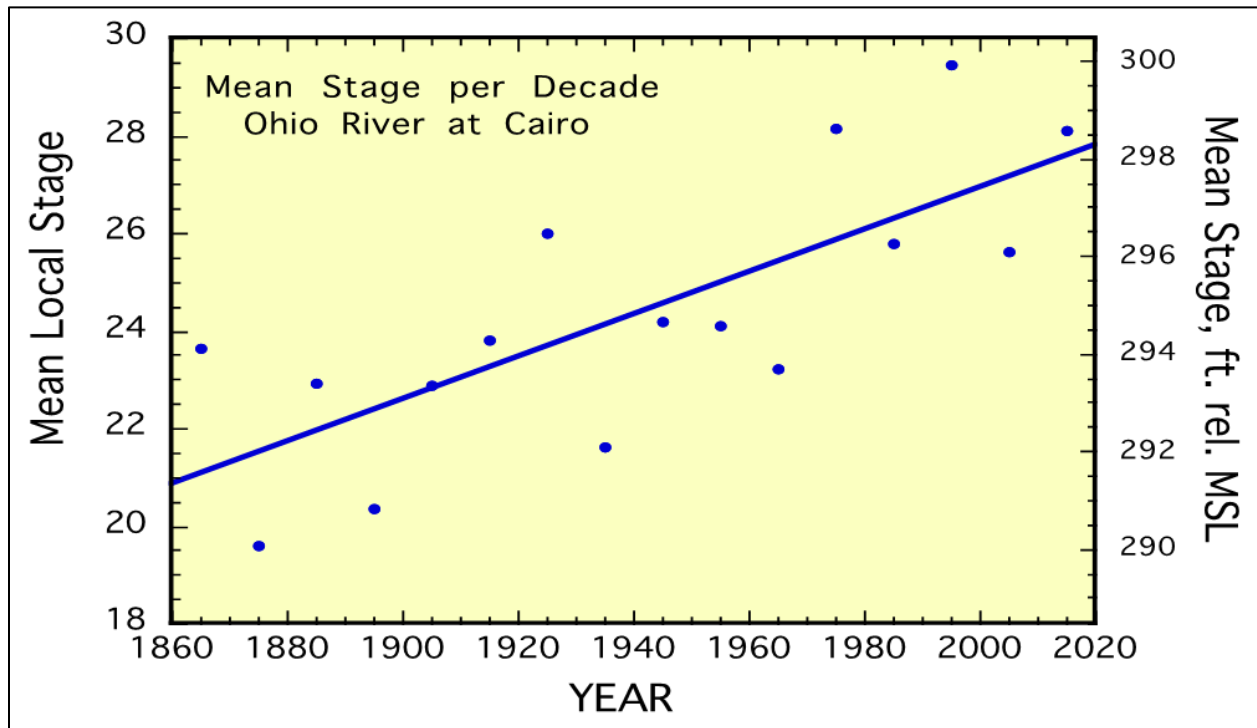
#### **RECENT FLOODING**

184. Periodic seasonal flooding of the Rivers onto adjacent floodplain land is a natural phenomenon, recorded for centuries and observed for millennia.

185. Nonetheless, by every measure, magnitude, frequency, and duration of flooding has dramatically increased in recent years.

186. The mean local stage of the Rivers has been progressively increasing with the construction of Structures.

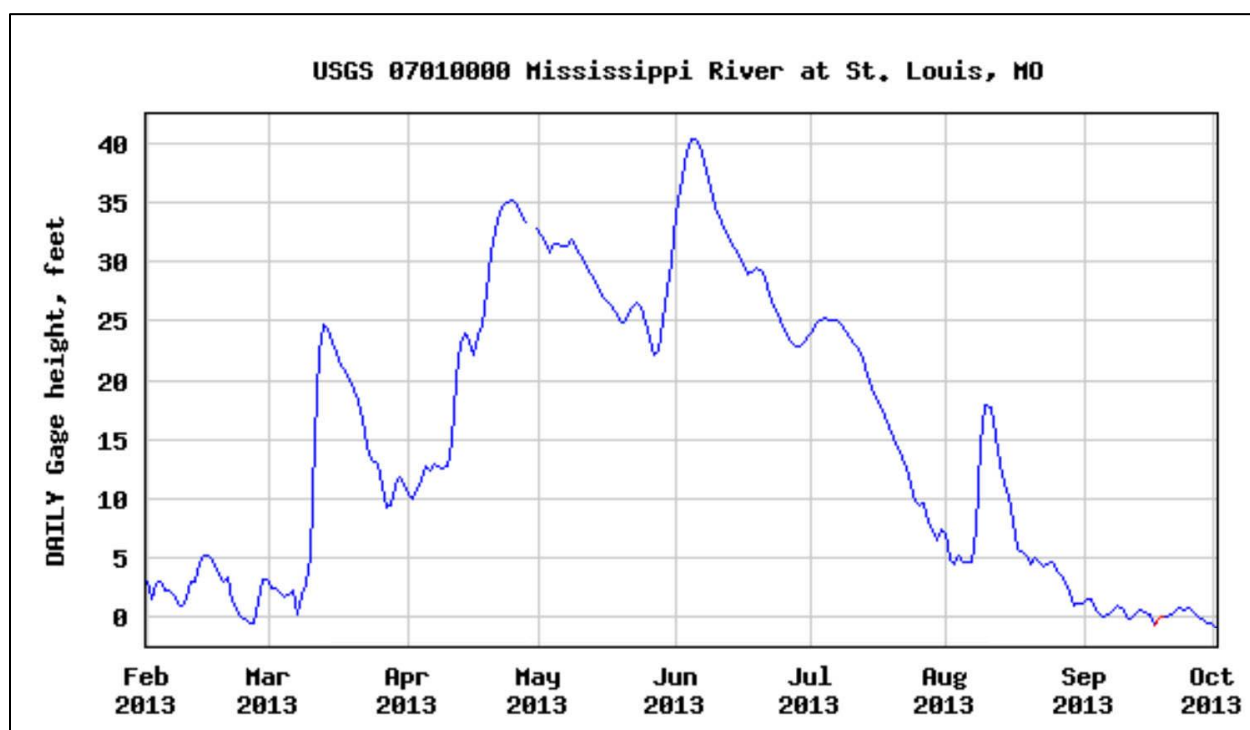
187. Below is a true and accurate graph depicting the mean river stage on the Ohio River at Cairo, Illinois:



*St. Louis, Missouri*

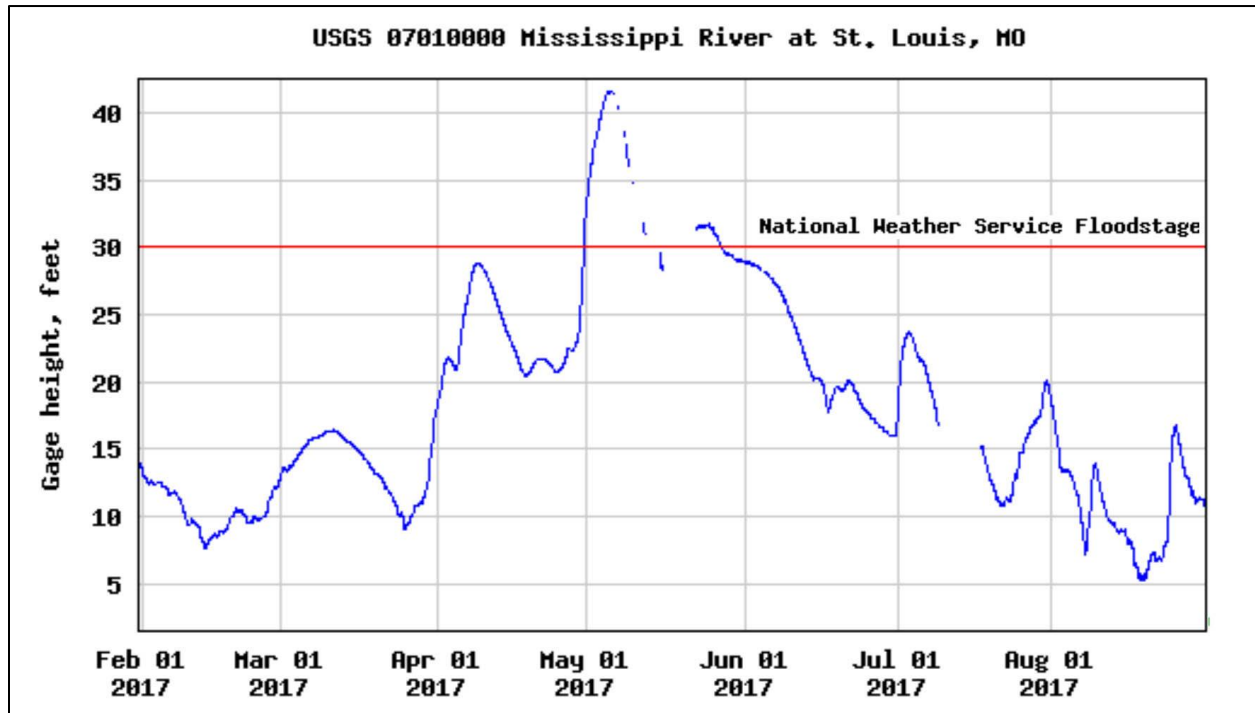
188. The Middle Mississippi at St. Louis, Missouri, has experienced an anomalous amount of peak WSEs since 2002. There has also been an increase in the duration and recurrence of inundation.

189. Below is a true and accurate hydrograph of the Mississippi River at St. Louis, Missouri from February 2013, through October 2013, showing the Mississippi River was at or above flood stage of 30 feet for an abnormal duration and height:





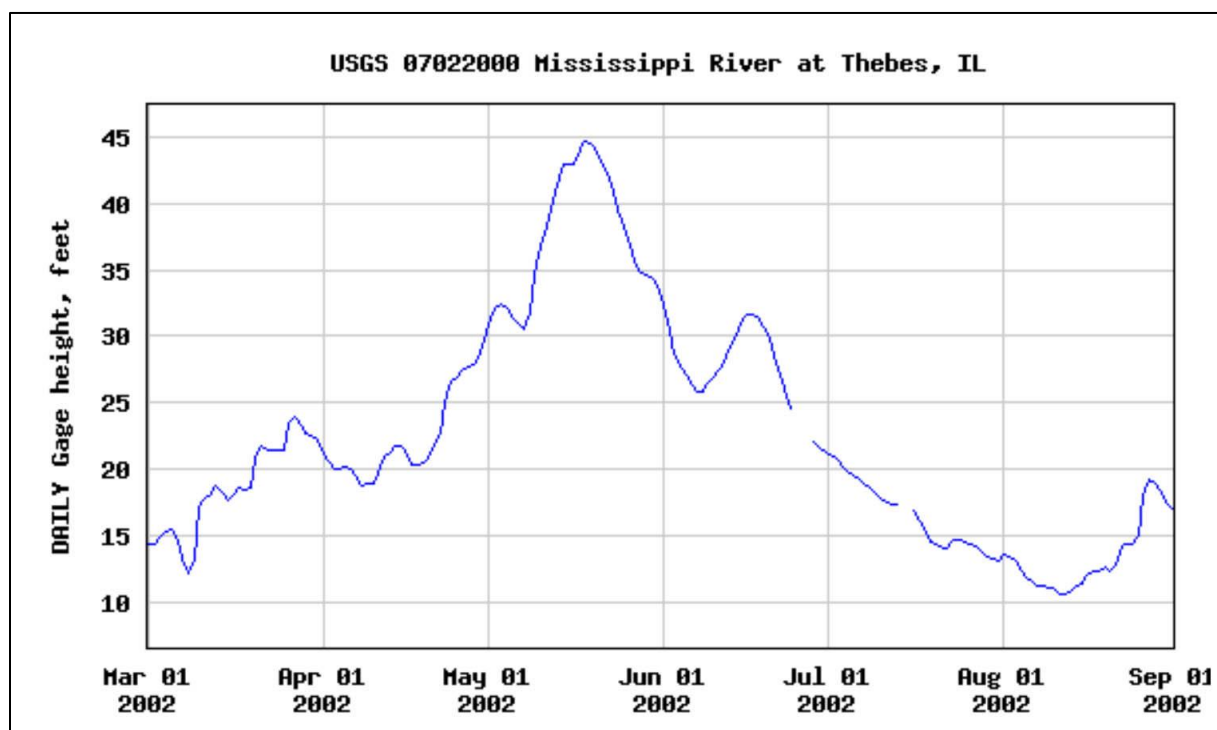
190. Below is a true and accurate hydrograph of the Mississippi River at St. Louis, Missouri from February 2017, through August 2017, showing the Mississippi River was at or above flood stage of 30 feet for an abnormal duration and timing:



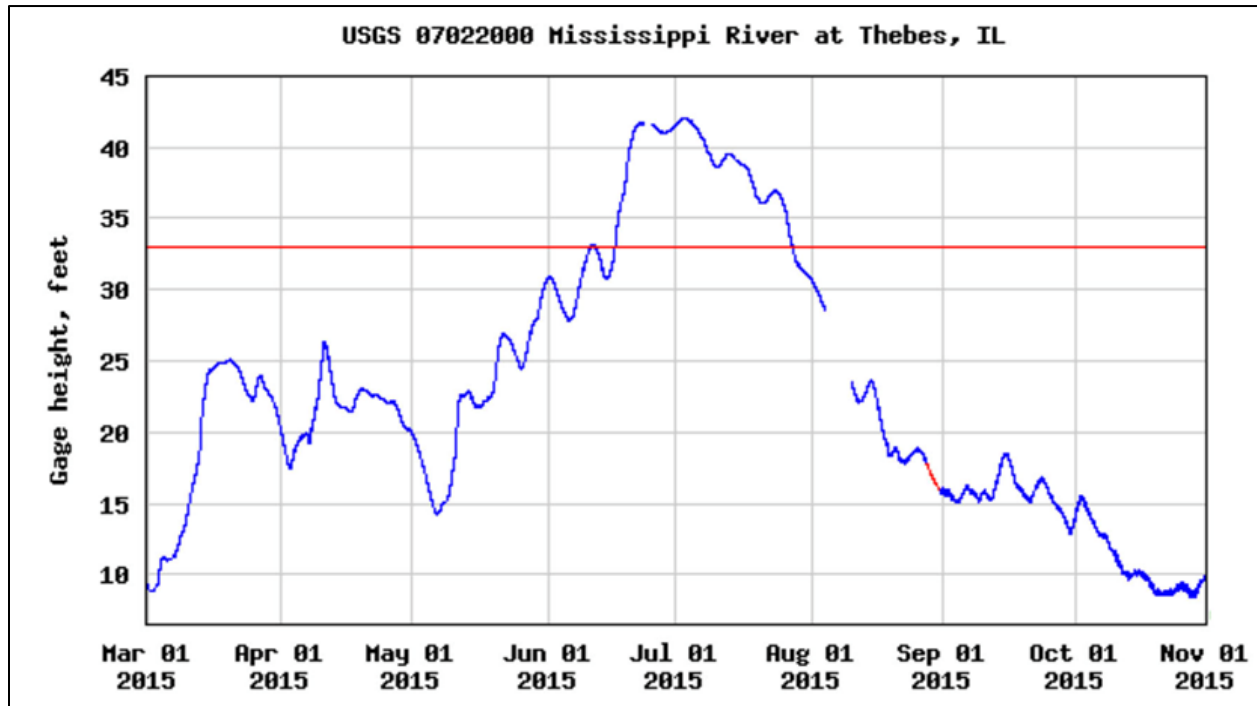
*Thebes, Illinois*

191. The Middle Mississippi at Thebes, Illinois, has experienced an anomalous amount of peak WSEs since 2002. There has also been an increase in the duration and recurrence of inundation.

192. Below is a true and accurate hydrograph of the Mississippi River stages at Thebes, Illinois, in 2002 showing the Mississippi River was at or above flood stage of 33 feet for nearly two months:

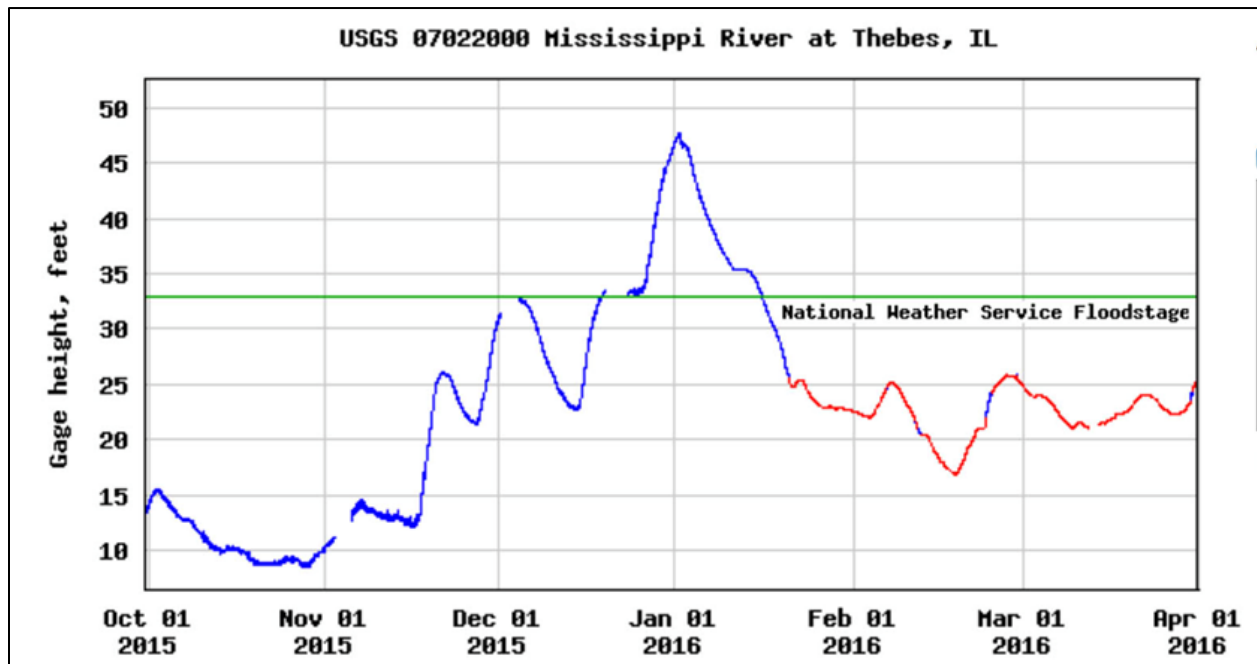


193. Below is a true and accurate hydrograph of the Mississippi River at Thebes, Illinois, from March 2015, through November 2015, showing the Mississippi River was at or above flood stage of 33 feet for an abnormal duration and timing:



194. The rapid rise in water levels in the winter of 2015 represented an extraordinary “flash flood” on the Middle Mississippi River.

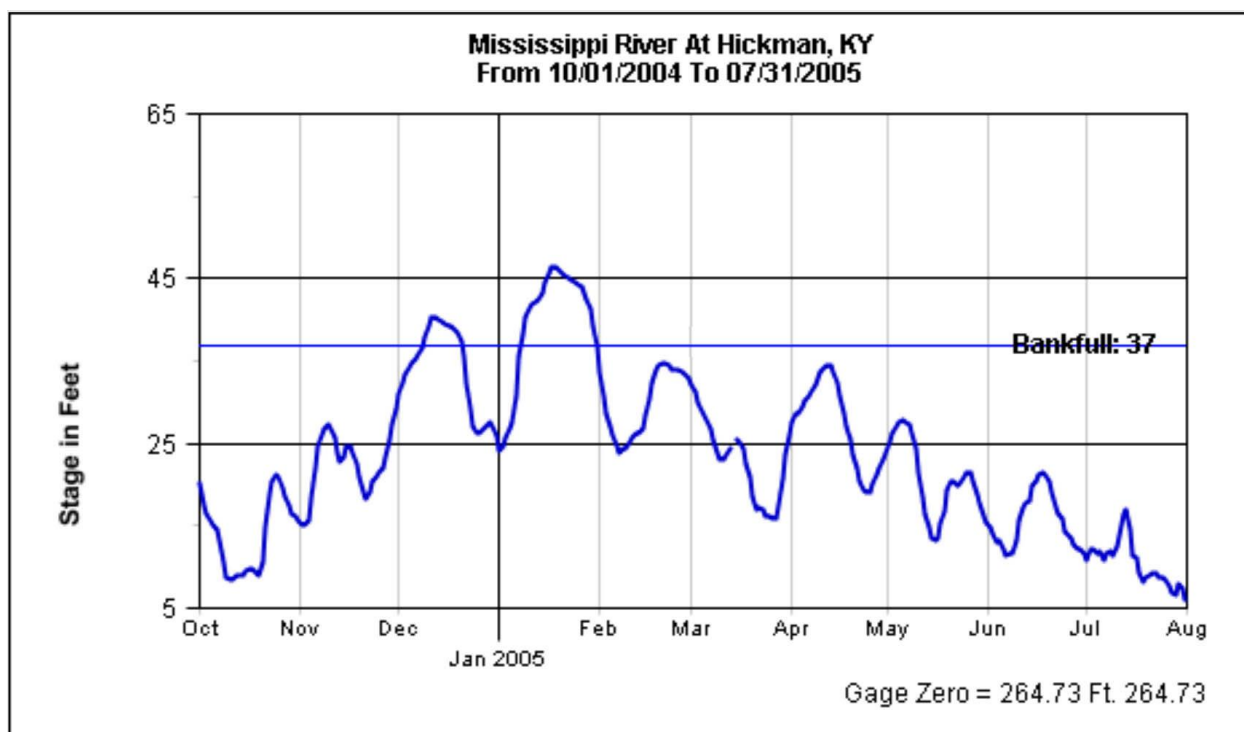
195. Below is a true and accurate hydrograph of the Mississippi River at Thebes, Illinois, from October 2015, through April 2016, showing the Mississippi River was at or above flood stage of 33 feet for an abnormal duration and timing:



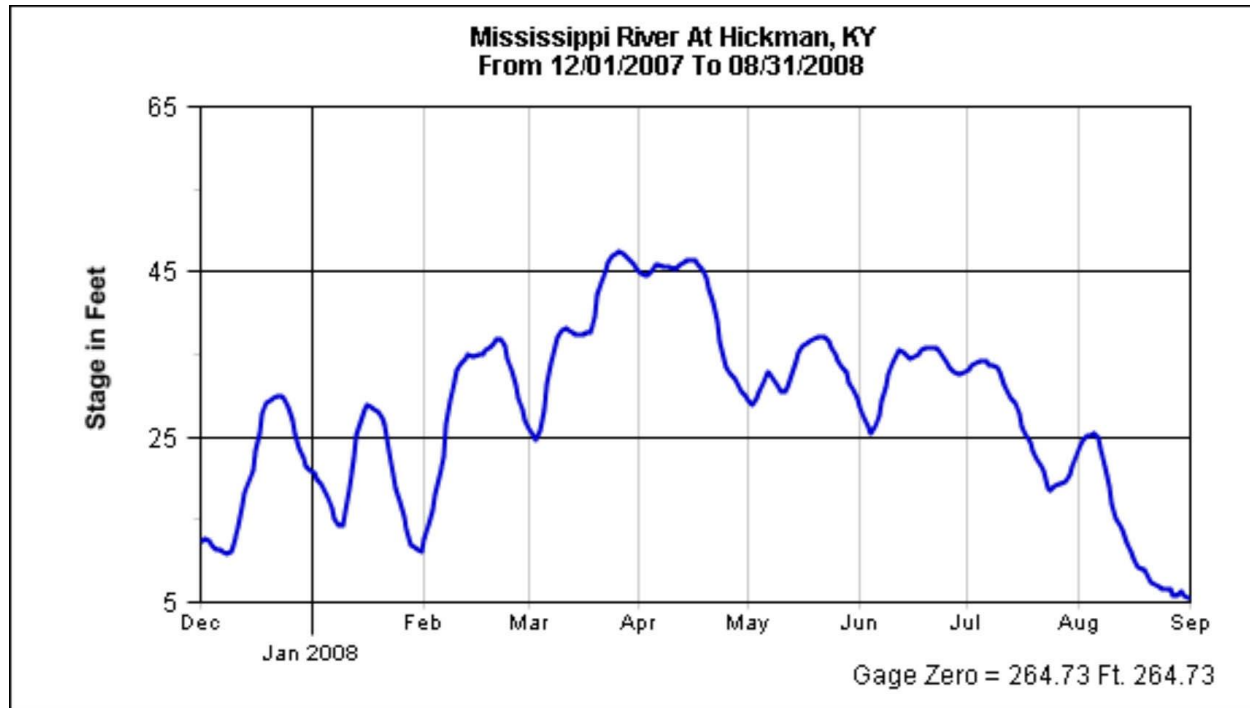
*Hickman, Kentucky*

196. The Lower Mississippi at Hickman, Kentucky, has experienced an anomalous amount of peak WSEs since 2002. There has also been an increase in the duration and recurrence of inundation.

197. Below is a true and accurate hydrograph of the Mississippi River stages at Hickman, Kentucky, from 2004 to 2005 showing the Mississippi River was at or above bankfull of 37 feet for nearly two months during an atypical winter flood:

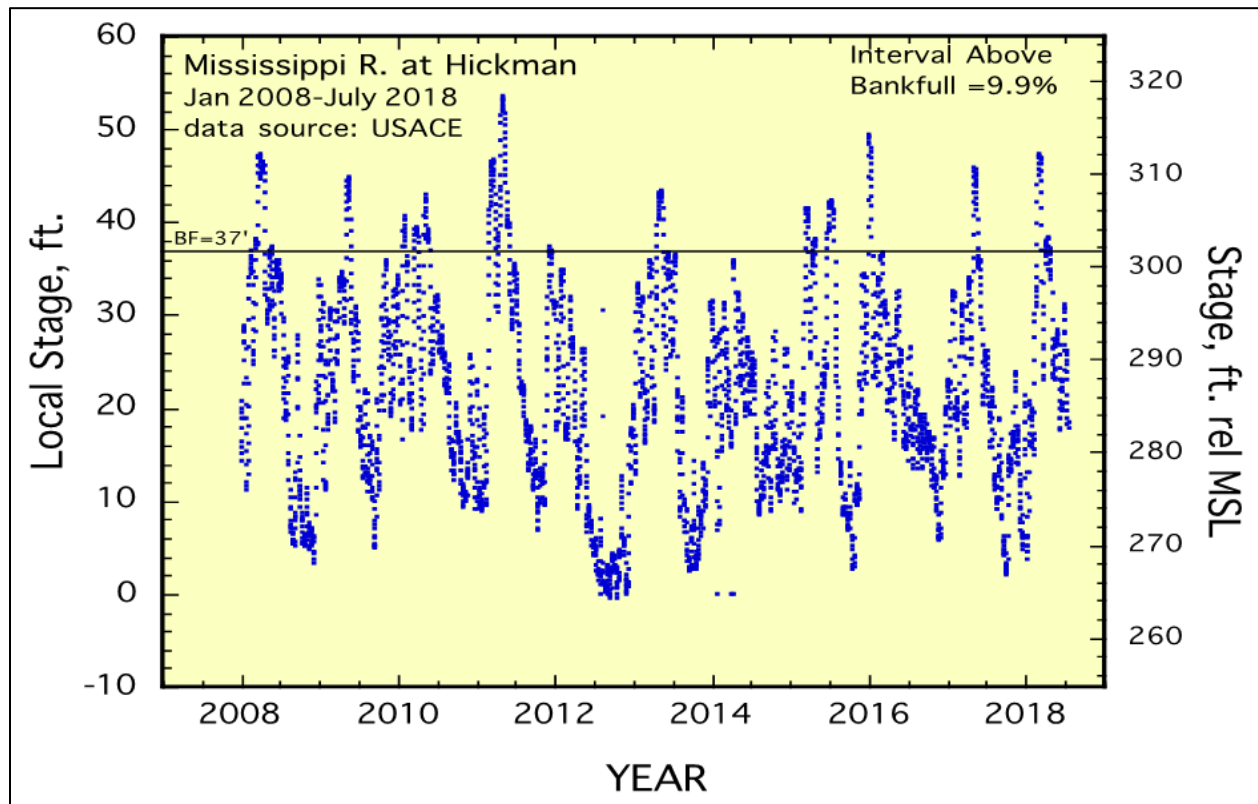


198. Below is a true and accurate hydrograph of the Mississippi River stages at Hickman, Kentucky, from December 2007 through August 2008 showing the Mississippi River was at or above bankfull of 37 feet for an abnormal duration:



199. Flood stage is not officially designated at Hickman, Kentucky, but the Mississippi River was above its bankfull of 37 feet, 9.9% of the time since 2008.

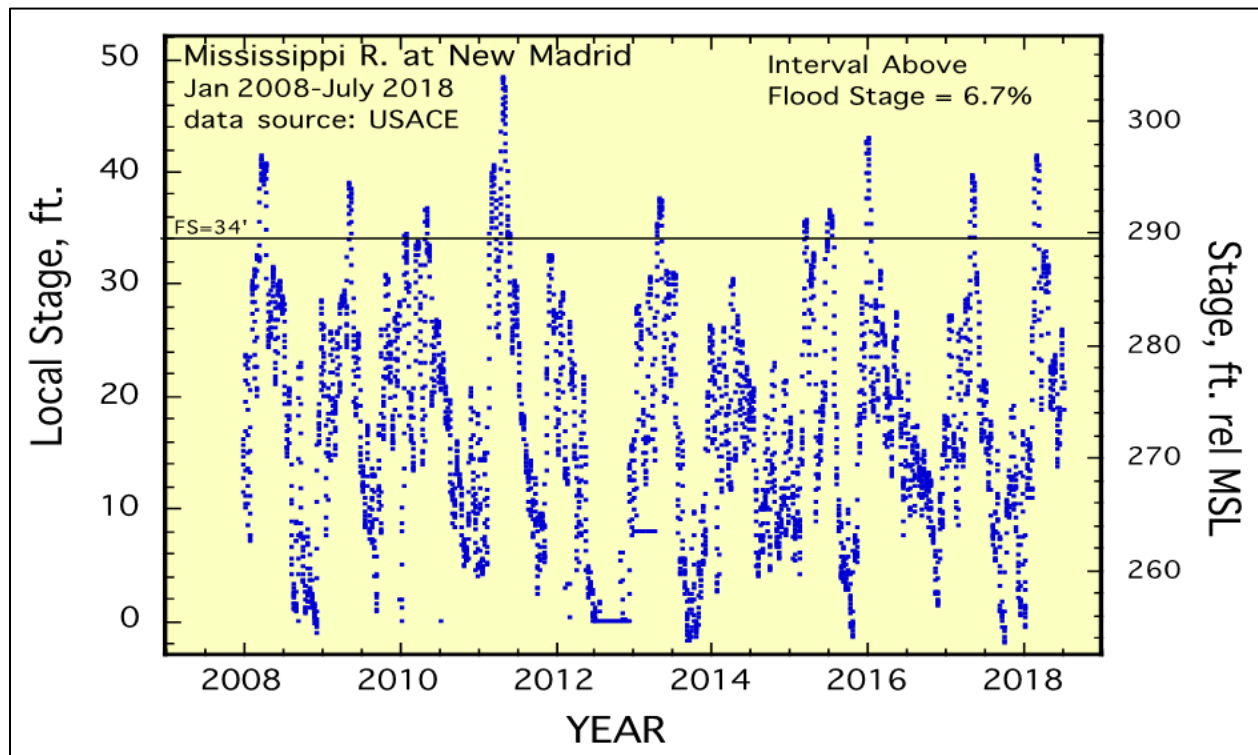
200. Below is a true and accurate graph depicting the Mississippi at Hickman, Kentucky, above bankfull for 9.9% of the time since 2008:



*New Madrid, Missouri*

201. The Mississippi River at New Madrid, Missouri, has experience an anomalous amount of peak WSEs since 2002. There has also been an increase in the duration and recurrence of inundation.

202. Below is a true and accurate graph depicting the Lower Mississippi at New Madrid, Missouri, above flood stage 6.7% of the time since 2008:

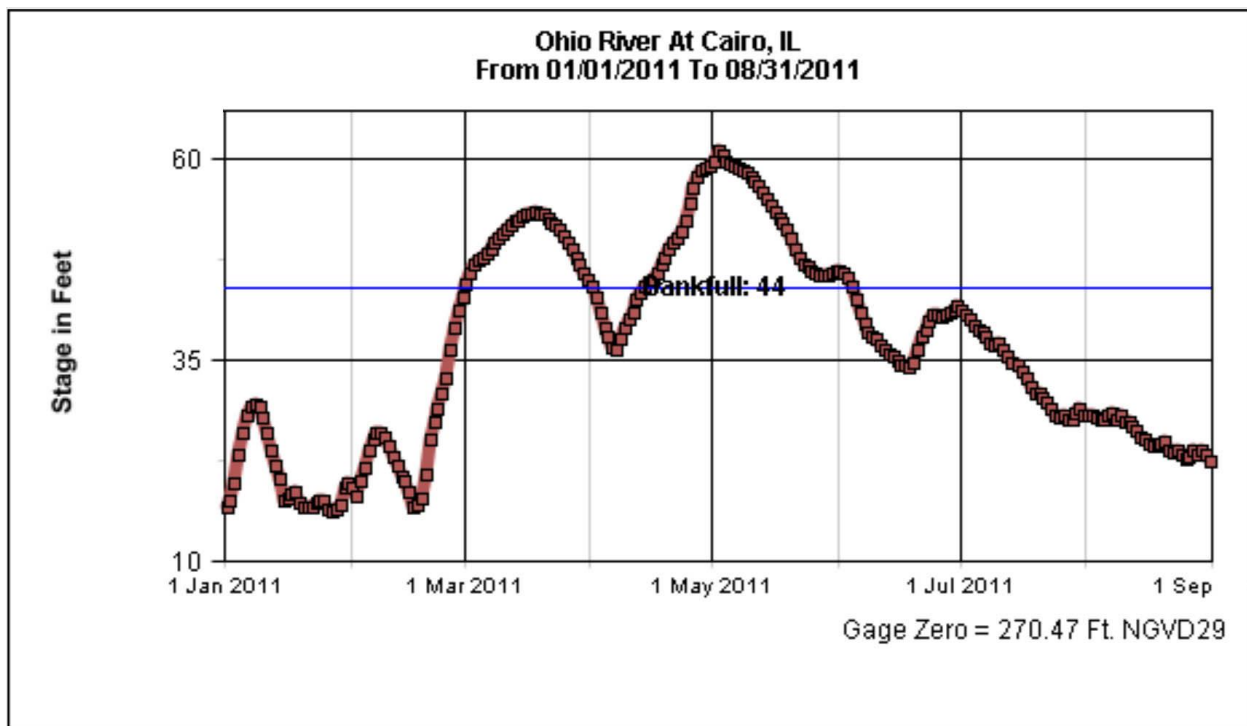




*Cairo, Illinois*

203. The Ohio River at Cairo, Illinois, has experienced an anomalous amount of peak WSEs since 2002. There has also been an increase in the duration and recurrence of inundation.

204. Below is a true and accurate hydrograph of the Ohio River stages at Cairo, Illinois from January 2011, through September 2011, showing the Ohio River was at or above flood stage of 40 feet for an abnormal duration and record WSE peak:

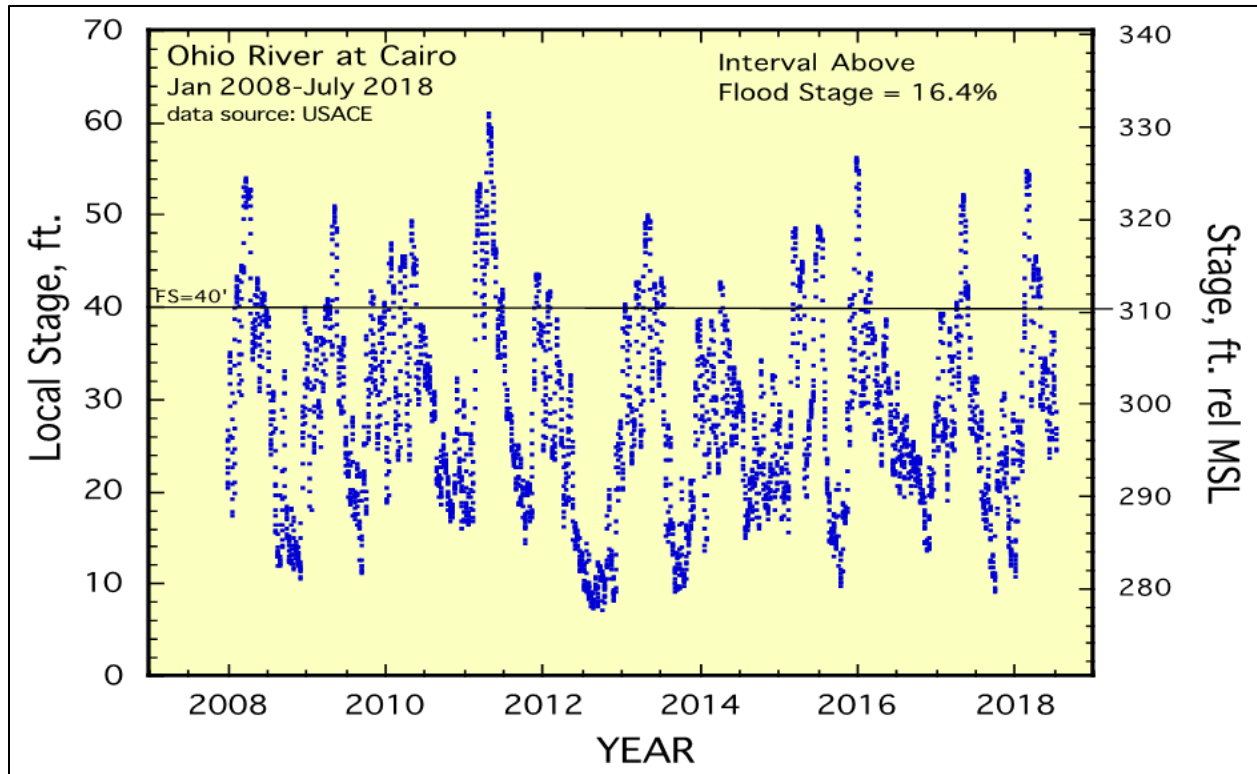


205. Historically, the Ohio River at Cairo, Illinois, was at or above flood stage, on average, 10.3% of days in a year.

206. In the past ten years, the Ohio River at Cairo, Illinois, was at or above flood stage, on average, 16.4% of days in a year.

207. The increase in the duration of floods from the constriction of the river amounts to low-lying fields being inundated, on average, an additional three weeks per year over natural conditions.

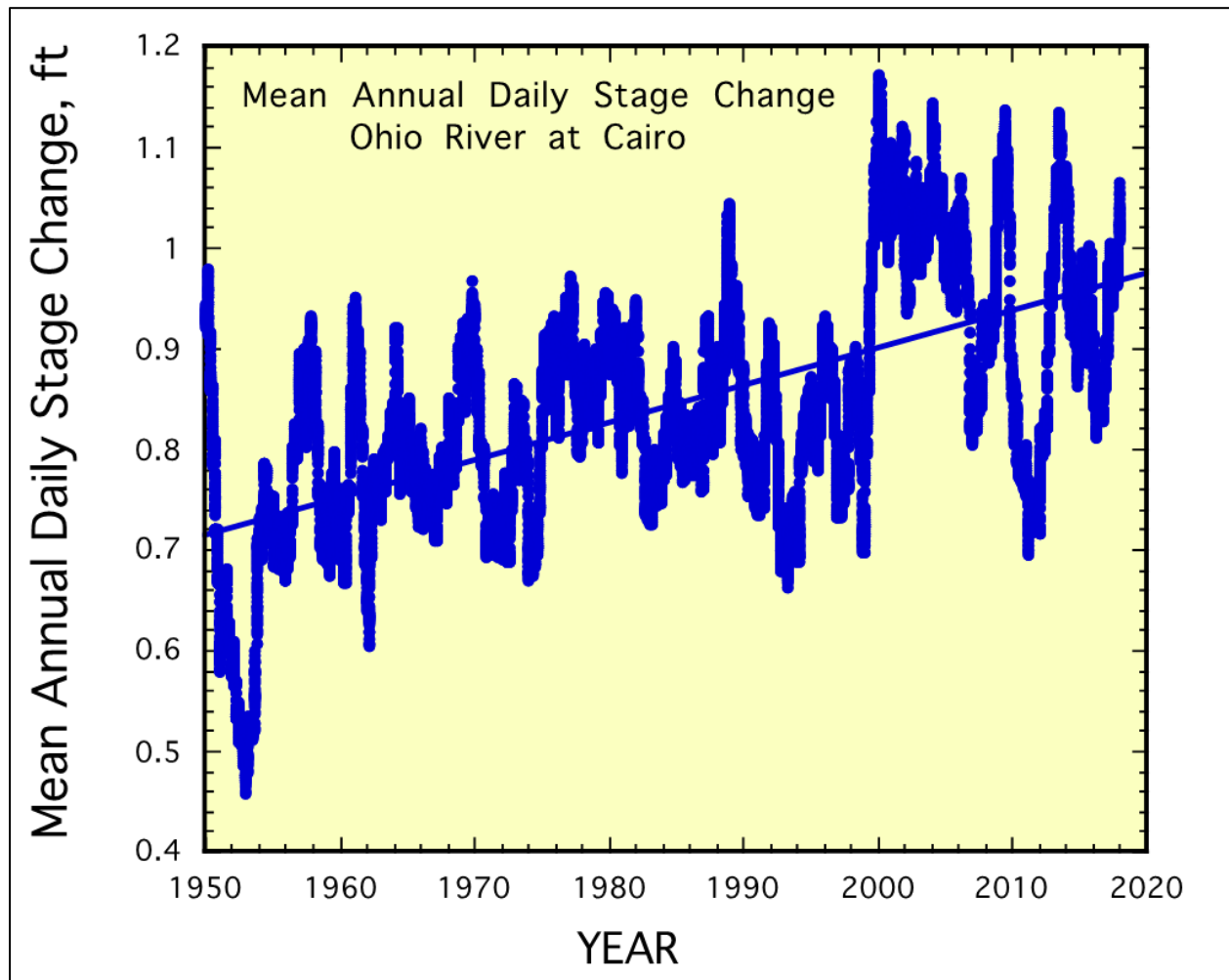
208. Below is a true and accurate graph showing the Ohio River at Cairo, Illinois, was at or above flood stage, on average, 16.4% of days in a year since 2008:



209. The increase in the daily variations of WSEs at the Ohio River at Cairo, Illinois, has progressively and dramatically increased with the construction of Structures.

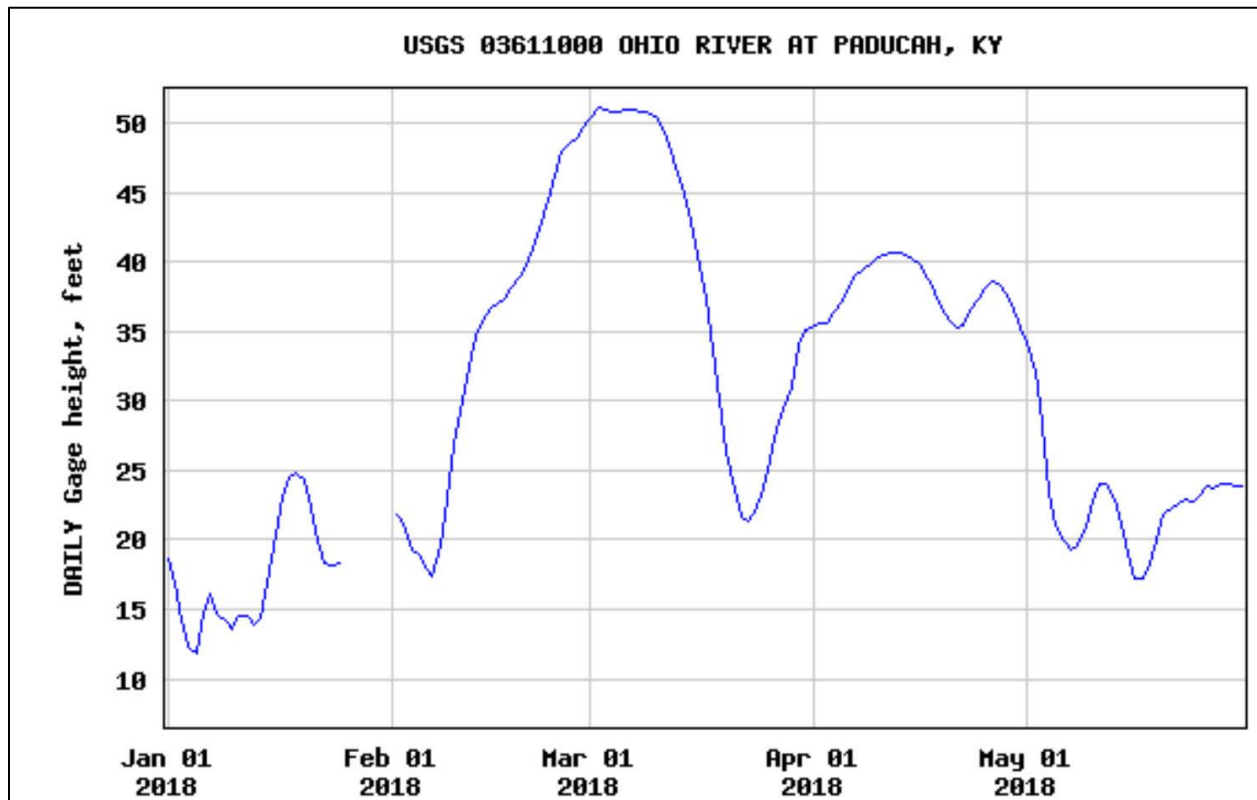
210. This variability has caused changes to the Plaintiffs' ground water table and the predictability of the River and has interfered with the drainage of Plaintiffs' property.

211. Below is a true and accurate graph depicting the progressive increase in the daily variations of WSEs of the Ohio River at Cairo, Illinois:

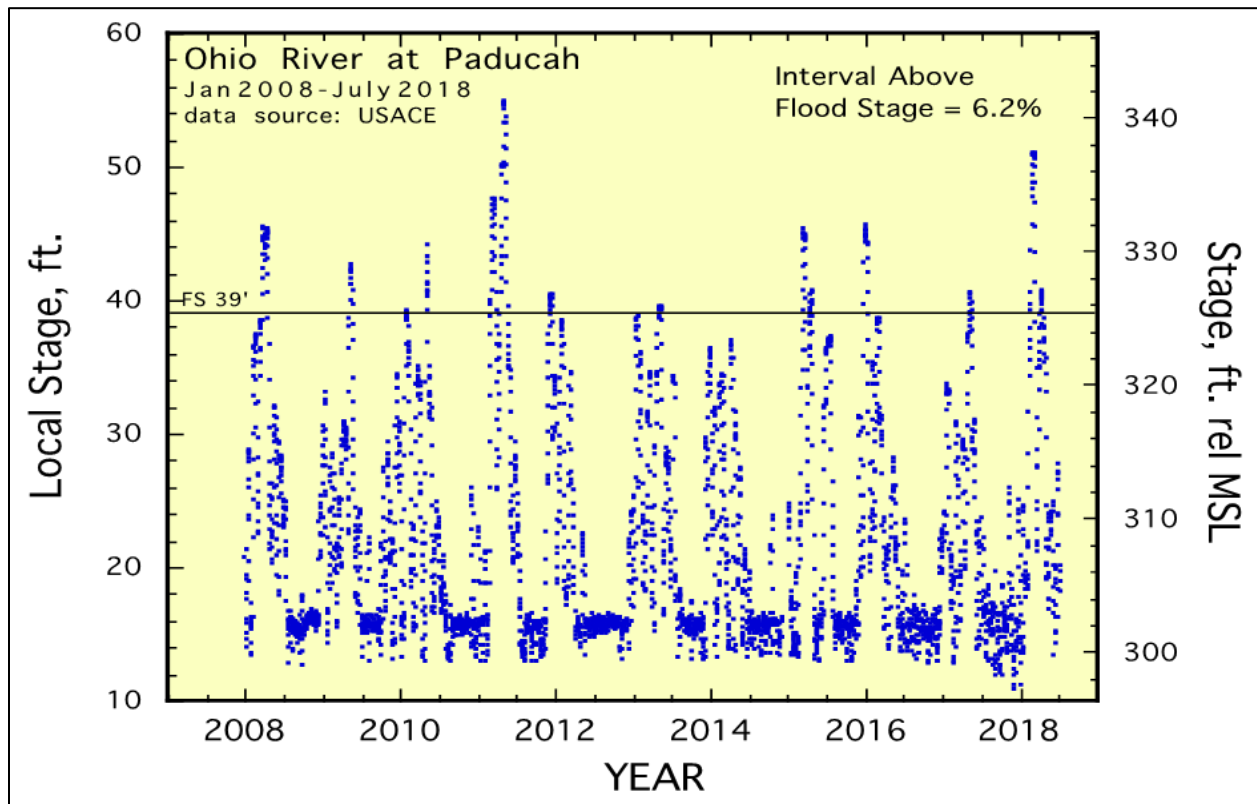


*Paducah Kentucky*

212. Below is a true and accurate hydrograph of the Ohio River at Paducah, Kentucky, from January 2018 through May 2018, showing the Ohio River was at or above flood stage of 39 feet for an abnormal duration and timing:



213. Below is a true and accurate graph showing the Ohio River at Paducah, Kentucky, was at or above flood stage, on average, 6.2% of days in a year:



214. Some Plaintiffs' lands are inundated at stage levels below the official National Weather Service ("NWS") flood stages.

215. The Federal Emergency Management Agency ("FEMA") has recognized the increase in flooding and has recently changed its assessment of flood risk for Plaintiffs' property.

216. Moreover, as recently as this year, Plaintiffs who have historically been able to obtain crop insurance have no longer been able to do so for certain crops, have seen their premiums rise, or have had their policies rated at high risk for flooding.

## CAUSAL MECHANISMS

217. There is widespread academic and governmental consensus that in recent years flooding on the Mississippi River has become more severe, more frequent, and larger in magnitude.

218. Using objective measures of flooding, such as river stage, recent flooding has been more frequent, intense, and longer in duration at many locations on the Rivers. These increases are progressive, systematic, and statistically significant.

219. The full range of causal mechanisms that could magnify flooding can be separated into two groups: (1) upstream factors, and (2) instream factors.

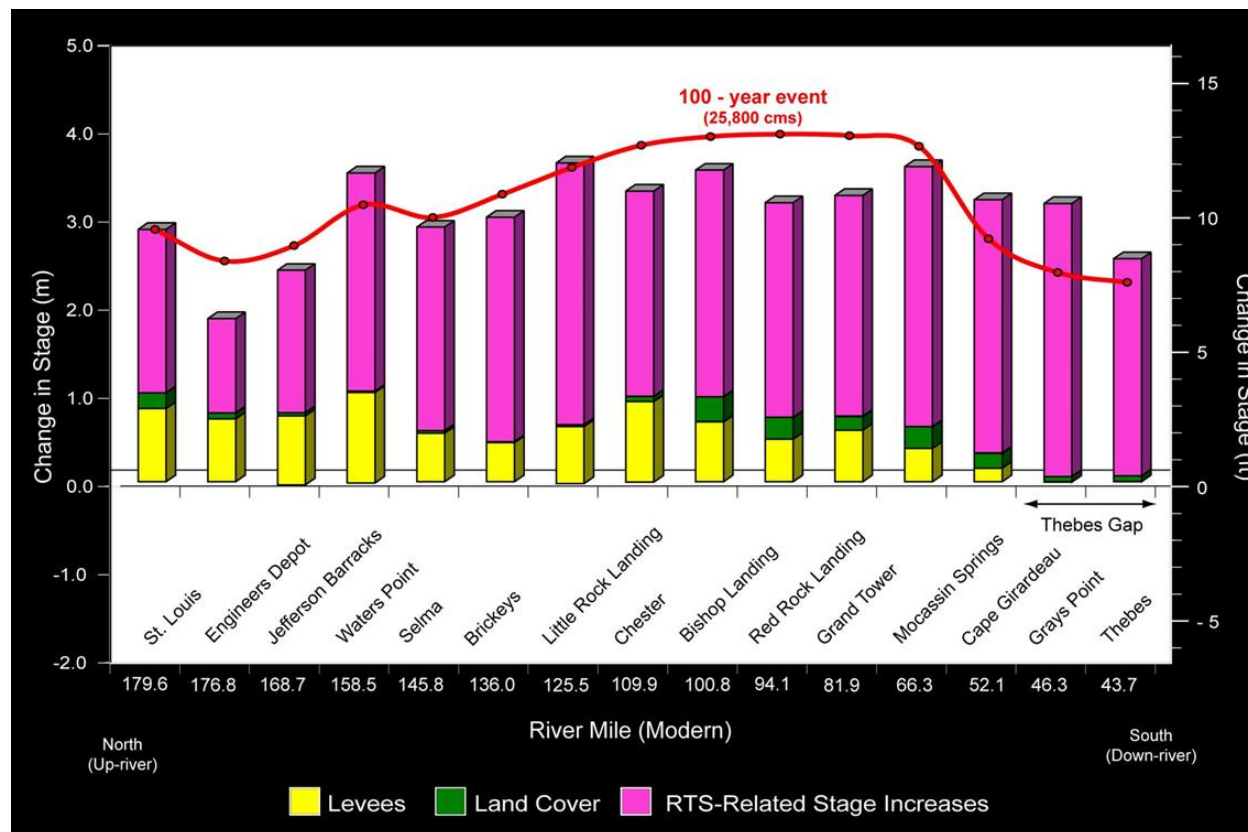
220. “Upstream factors” include potential climate change, basin land-cover change, and any dams present upstream on the river or its tributaries. Climate-change researchers suggest that a warming earth can lead to more intense storms which, in turn, could cause larger floods on rivers including the Mississippi. Similarly, historic changes in land cover within the watershed can alter the pattern of runoff from rainstorms, which could also cause larger floods. Dams, such as those that have been built on the main-stem Missouri River, were designed in part to store flood waters to reduce flooding downstream.

221. “Instream factors” include any alteration of the river channel or floodplain that change how floodwaters are conveyed through a given stretch of river. For example, if narrowing the river channel cuts the river’s cross-sectional area in half, flood waters will be significantly deeper, all other factors being equal.

222. Scientists and engineers have evaluated the full range of mechanisms that could potentially contribute to magnified flooding on the Mississippi River and Ohio River, and have

recently been able to specifically quantify and attribute increased flooding to certain such mechanisms.

223. Below is a true and accurate graph depicting the attribution of certain upstream and instream factors to stage changes at specific gage stations along the Middle Mississippi River:



224. In the upper Mississippi watershed, both statistical analyses of flood trends, and climate modeling studies, conclude that climate change is not making the largest floods larger. After analyzing 774 gaging records from the Central United States (“CUS”), Mallakpur and Villarini (2015) concluded that “the largest flood peaks have not been strongly increasing in this broad belt of the CUS.”

225. On the Mississippi River, research has specifically assessed the combined impacts of climate change and land-cover change (“upstream factors”) and found their effects on large Mississippi River floods to be *de minimis*.

226. Likewise, research has specifically assessed the impact of dams on flooding on the Mississippi River system and the impacts of mainstem dams on the Missouri River. Although these dams significantly decrease flood peaks for a number of miles downstream, tributary inputs diminish those benefits farther away. On the MMR, at least 800 miles downstream from the nearest Missouri River dam, research has demonstrated that there is no statistically significant reduction in peak floods.

227. Further, changes in upstream factors would increase “discharge,” *i.e.* river flow rate measured in cubic feet per second. USGS discharge measurements stretching back several decades (to over a century) show no statistically significant increase in discharge for flood peaks measured at any of the stations on the Middle Mississippi River or upper Lower Mississippi River.

228. With upstream factors effectively eliminated as the potential mechanisms driving observed atypical flooding on the Rivers, instream factors are the only remaining impetus.

229. Historic instream changes to the Rivers, as outlined above, include the Structures defined above, as well as levees and constriction of the river channel. Narrowing or constriction of the Rivers has been a direct causal result of Structure building. Thus, both Structure construction and constriction can be considered concurrently.

230. The hydraulic impact of levees has been extensively studied, including on the Middle Mississippi River and upper Lower Mississippi River. Levees create a “surcharge” (*i.e.* higher WSE) by excluding flood water from the flood plain and confining flood flows to the



river channel. Research on the Mississippi River system shows levee-driven increases in flood levels of a few inches up to a small number of feet. This amount is substantially less than the observed increases in high WSE levels on the Rivers and, as shown below, is *de minimis* compared to the impact of river training structures.

*Flood Impacts of River Training Structures*

231. Because the majority of observed atypical flooding on the Mississippi River cannot be attributed to other available factors, extensive research has considered the impact of Structures.

232. Beside discharge, for individuals in flood prone areas, stage is the direct measure of a flood's impact on them. After all, if one's property is inundated, the depth and duration of the floodwaters is far more material than the flow rate of passing water.

233. In contrast to discharge measurements, long-term analysis of stage measurements shows statistically significant increases in flooding and flood duration at measurement stations along the Middle Mississippi River and upper Lower Mississippi River near the confluence.

234. Another line of research into flood impacts resulting from instream factors utilizes "Specific Gage Analysis." Specific Gage Analysis is a technique designed to reduce the "noise," or variability associated with short-term weather impacts on long-term hydrologic trends. This technique is widely used, including by the Corps in its River studies. Specific Gage Analysis tracks water elevations for fixed and specific discharges, thus significantly reducing variability for any year of interest.

235. Specific Gage Analysis has been performed for measurement stations throughout the Mississippi River. These analyses confirm large increases in WSE for flood conditions. Moreover, these analyses show increases in WSE precisely where and when Structures have

been built. In other words, when and where Structures have been built historically is when and where flood levels and WSEs have increased. When and where such Structures were not built or stopped being built, flood levels and WSEs increased little or not at all.

236. In rivers where Structures have been removed or minimized, such as in the upper Ohio River and the Rhine River, flood levels have significantly decreased, returning to historic levels.

237. Statistical analysis of these specific gage trends shows that on the Middle Mississippi River the construction of thousands of feet of wing dike and chevron dikes has resulted in up to 15 feet of increased flood levels in some locations and six to ten feet in broad stretches of the Middle Mississippi River and upper Lower Mississippi River where these Structures are prevalent.

238. The past 500 years of flooding on the Middle Mississippi River has been extensively studied to determine the effects, if any, of climate change.

239. There have been small, up-and-down changes in flood magnitudes over time, but there have been unprecedented increases in flood magnitudes that coincide with the Corps' continued navigation engineering of the Mississippi River.

240. In addition, hydraulic modeling has also been used to test the impacts of Structures on the Mississippi River. Using archival river survey data, principally from the Corps, historic digital models of the Mississippi River have been created for the past 100 years, known as hydraulic retro-models (numerical hydraulic models of historical conditions). This hydraulic retro-modeling simulates the impacts of various instream changes, including dike construction, in the resulting flooding.

241. As identified statistically, a small amount of the total observed increases in flood magnitude throughout the history of the Middle Mississippi River and Lower Mississippi River are due to levee construction, totaling three feet or less throughout the Middle Mississippi River and extreme upper Lower Mississippi River.

242. The retro-modeling also shows small, insignificant, local increases in flood levels attributed to greater bank vegetation over time. Nonetheless, the modeling shows that the clear majority of total increases in flooding are directly attributable to the Corps' construction of Structures. Structures increased flood levels by up to 15 feet in some locations and 6 to 10 feet in stretches of the Mississippi River where these Structures are prevalent.

243. By all the above measures, research indicates that the impacts of instream and upstream factors are cumulative, meaning that each successive construction on the Rivers adds to and exacerbates the magnitude of flooding on the Rivers

244. Due to backwater effects, flooding on the extreme Lower Ohio River for many miles upstream of the confluence is largely controlled by water levels on the Mississippi River and by the engineering modifications of the Mississippi River that have altered flood stages.

245. Nonetheless, the Corps began a renewed wave of intensive dike construction in 1990, building 40,000 feet of wing dikes and bendway weirs between 1990 and 1993.

246. Between 2003 and 2010 the Corps built at least 23 chevron dikes.

247. That campaign continues to the present day, with a new plan to construct new Structures and repair and lengthen existing structures.

**THE CORPS' CONSTRUCTION HAS INTERFERED WITH PLAINTIFFS' REASONABLE INVESTMENT-BACKED EXPECTATIONS OF THEIR PROPERTY**

248. The atypical flooding caused by the Corps' recent construction practices has imposed a severe burden on Plaintiffs' land and other property, profoundly disrupting and

interfering with Plaintiffs' reasonable expectations of the intended and customary use of that property.

249. The Corps' Structures have caused higher WSEs for longer durations, which has blocked drainage and raised the groundwater table, significantly impairing the use of agriculture and recreation property.

250. As a result of increased WSEs, many timber species historically native to the area have died, and will no longer grow or reproduce.

251. Furthermore, some Plaintiffs have lost crops, have not been able to farm, or can no longer farm due to the atypical flooding.

252. Some Plaintiffs have not been able to access their property due to the atypical flooding

253. Some Plaintiffs' land has been severely eroded by the Rivers due to the atypical flooding.

254. Plaintiffs have made significant investment of time and resources in the land and other property now devastated by the Corps' actions. Plaintiffs made these investments based on the expectation that the Corps would manage the Rivers responsibly.

### **CAUSE OF ACTION**

255. **Cause 1:** The Corps Took Plaintiffs' Property without Just Compensation in Violation of the Fifth Amendment of the United States Constitution

256. Plaintiffs incorporate by reference and reallege as though fully set forth herein, each and every allegation as set forth in the preceding paragraphs of this Complaint.

257. Plaintiffs have a legally-recognized property interest in their land and other property, and the economic benefits associated with that property, located in the river bottoms.

258. Plaintiffs had distinct, reasonable, investment-backed expectations that their property would only be subject to flooding in line with the historical hydrograph of the Middle Mississippi River, upper Lower Mississippi River, and lower Ohio River.

259. Atypical flooding has significantly interfered with that property interest and upset Plaintiffs' reasonable, investment-backed expectations on a temporary and permanent basis.

260. That atypical flooding is and has been a direct and foreseeable result of the Army Corps' construction of Structures in the Rivers.

261. The Corps continued construction of Structures has been for the purpose of achieving a public good; namely, to facilitate navigation on the Rivers.

262. Plaintiffs' property has been subjected to atypical flooding that would not otherwise have occurred. To the extent that natural seasonal flooding would have occurred in the absence of the Corps' Structures, it has been severely altered and aggravated by the Structures.

263. By continuing to aggressively constrict and train the river with Structures, the Corps caused, and continue to cause, atypical flooding of Plaintiffs' property, interfering with Plaintiffs' reasonable, investment backed expectations.

264. The Corps knew or should have known that its constriction of the river by Structures would result in atypical flooding of Plaintiffs' property.

265. Such atypical flooding of Plaintiffs' property was the direct, natural, probable, and foreseeable result of the Corps' actions.

266. The atypical flooding of Plaintiffs' property has interfered with Plaintiffs' property interests for a substantial period of time and, in some instances, permanently destroyed Plaintiffs' property or permanently deprived Plaintiffs of the use and enjoyment of their property.

267. The Corps took flowage easements over Plaintiffs' property without just compensation.

268. The Corps took Plaintiffs' property for a public purpose.

269. The Corps' actions are attributable to the United States.

270. The United States government has not provided Plaintiffs with just compensation for its taking of Plaintiffs' property.

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiffs pray that this Court enter judgment on their behalf, against the Defendant, adjudging and decreeing that:

A. Defendant took Plaintiffs' property without just compensation in violation of the Fifth Amendment of the United States Constitution;

B. Judgment be entered against the Defendants and in favor of Plaintiffs for compensation for the property right taken from them, together with the costs of suit, including reasonable attorneys' fees and interest;

C. Plaintiffs be awarded just compensation for their deprivation and losses;

D. Plaintiffs have such other, further, and different relief as the case may require and the Court may deem just and proper under the circumstances.

Dated: July 26, 2018

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'E.A. Flint', is positioned above a horizontal line.

Ethan A. Flint, *Attorney of Record*  
Adam M. Riley, *Of Counsel*  
Flint Law Firm, LLC  
222 E. Park St., Suite 500  
P.O. Box 189  
Edwardsville, IL 62026  
T: (618) 288-4777 F: (618) 288-2864  
[eflint@flintlaw.com](mailto:eflint@flintlaw.com)  
[ariley@flintlaw.com](mailto:ariley@flintlaw.com)